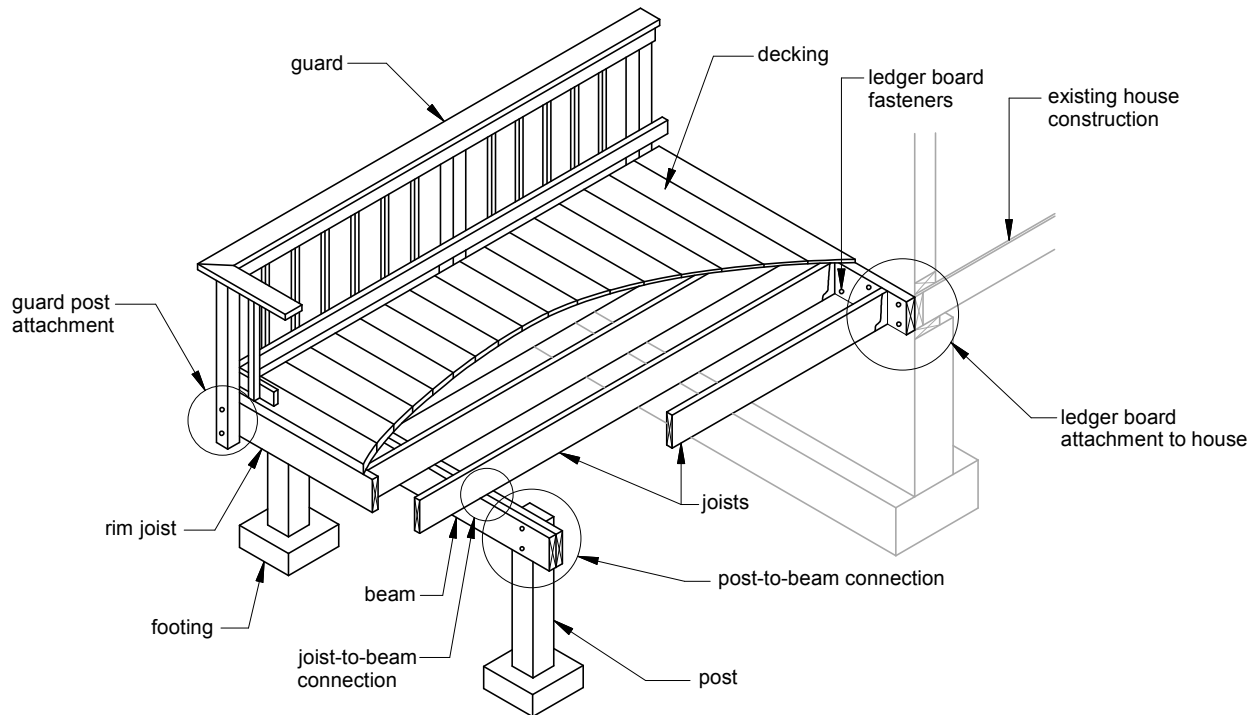




City of Fairfax, VA

Typical Deck Details for Single Family Houses

Based on the 2006 International Residential Code



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Publication DCA6 by the American Wood Council is considered equivalent to these details and can be used during the permit application process to obtain a permit in the City of Fairfax. Go to www.awc.org to learn more and to download the publication.

This package is a guide for *RESIDENTIAL* projects only, and is not a substitute for project plans. Four (4) sets of plans, with a plat of your property on which the location of the project is indicated, must be submitted.

Homeowner's Association pre-approval may be required.

City of Fairfax, VA

10455 Armstrong Street
Fairfax, VA 22030

Code Administration: 703 385-7830

Typical Deck Details

Based on the 2006 International Residential Code

www.fairfaxva.gov

Sheet 1 of 20

GENERAL NOTES:

1. Unless noted otherwise within these details, all lumber shall be southern pine, grade #2 or better and shall be pressure treated ACQ, CA-B or CuN-W in accordance with American Wood-Preservers' Association standards. All lumber in contact with the ground shall be rated as "ground-contact."

Please note: Not all treated lumber is rated for ground contact.

2. All nails and screws shall be stainless steel, or **hot-dipped** galvanized steel.
3. All hardware (joist hangers, cast-in-place post anchors, mechanical fasteners, etc.) shall be galvanized with 1.85 oz/sf of zinc (G-185 coating) or shall be stainless steel. Products such as "Zmax" from Simpson Strong-Tie, or "Triple Zinc" from USP, are acceptable.
4. Decks constructed in accordance with these details are not approved for future hot tub installations.
5. When an existing house wall which encloses any portion of a deck contains a window, individual panes must be safety glazed if the bottom edge is less than 18" above the deck surface, the top edge is greater than 36" above the deck surface, and the total pane area is greater than 9 sf.
6. Required Inspections:
 - ◆ Footing inspections are required PRIOR to the placement of concrete.
 - ◆ At the time of the footing inspection, the ledger board must be attached to the house. Adequacy of connections will be verified by city inspectors. If a ladder is required to access the ledger board, one must be provided by the contractor.
 - ◆ A footing, framing and final inspection are required on all decks.
 - ◆ Framing and final inspections may be combined if all portions of the deck framing and mechanical attachments are at least 48" above grade.
 - ◆ Inspections are required by law. Failure to call for and receive any inspections can result in the issuance of a NOTICE OF VIOLATION, which may lead to legal proceedings.
7. It is the responsibility of the permit holder or his representative to notify the city when the stages of construction are reached which require an inspection. Inspection requests may be made either by calling the Code Administration office by at least 3:00 pm of the day prior to when you want your inspection, or by going to the following web site for your request:

<http://www.fairfaxva.gov/Code/InspectionRequest.asp>

Call the Code Administration office at 703 385-7830 for your inspection request. Please have your permit number and address, and the type of inspection you want. Code Administration hours are from 7:00 am until 5:00 pm daily. You may request a morning or afternoon inspection. Inspection requests received after 3:00 pm will not be honored for the following business day.

8. Decks may not be used or occupied until the final inspection approval is obtained.

DECKING REQUIREMENTS:

All decking material shall be composed of 2x6 or $\frac{5}{4}$ ("five-quarter") board. Attach decking to each joist with a minimum of (2) 16d nails for 2x6 lumber, or (2) 8d nails for $\frac{5}{4}$ lumber, or approved screws. A wide variety of proprietary screws and nails, and other speciality fasteners are available. See figure 11 for decking attachment to the rim joist. Decking may be installed perpendicular to the joists or up to a 45° angle to the joists.

Decking composed of lumber other than #2 PT pine, or plastic or other manufactured material may be used when the product has an approved evaluation report from an accredited evaluation service. The evaluation report must be on the job site and available to the inspector at the time of the inspection. Installation methods and span distances for the materials must be in strict conformance with the evaluation report and the manufacturer's installation instructions. All decking products must be capable of supporting a minimum live load of 40 pounds per square foot.

JOIST SIZE:

The maximum span of the joist is measured as indicated in the figures below, and does not include any overhang. Joists may have an overhang, as shown in the figures below, with the maximum allowable length of the overhang listed in TABLE 1.

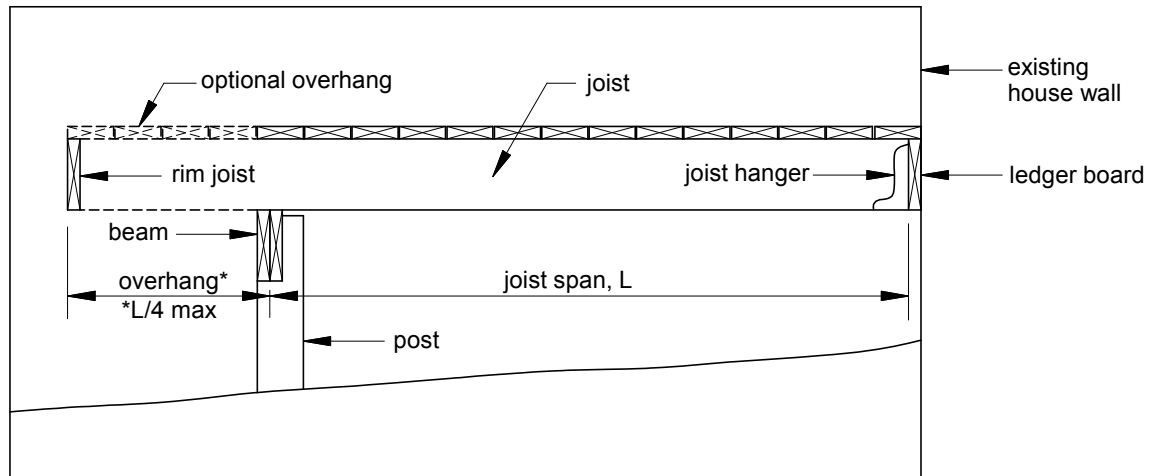


FIGURE 1: JOIST SPAN - DECK ATTACHED AT HOUSE

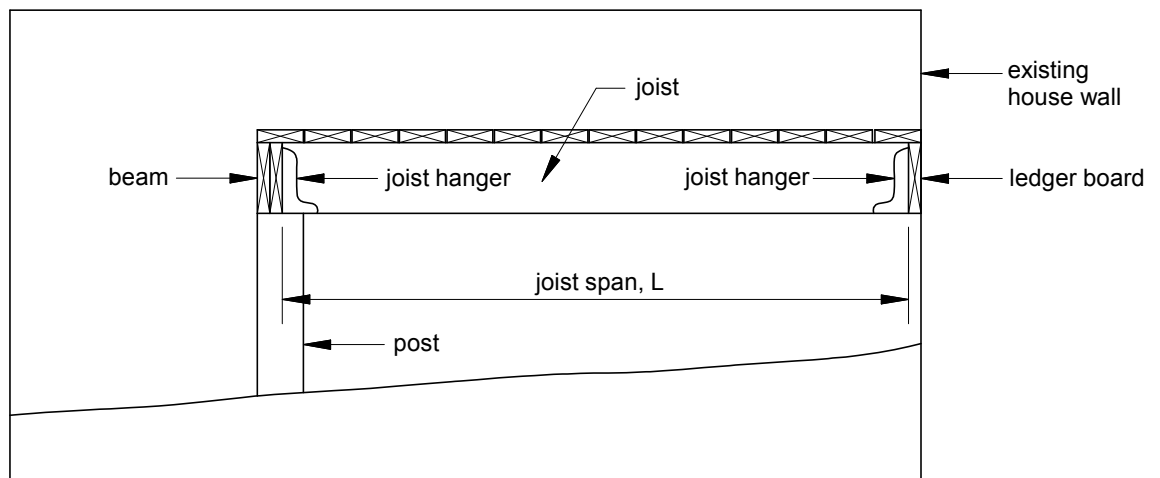


FIGURE 2: JOIST SPAN - DECK ATTACHED TO SIDE OF BEAM

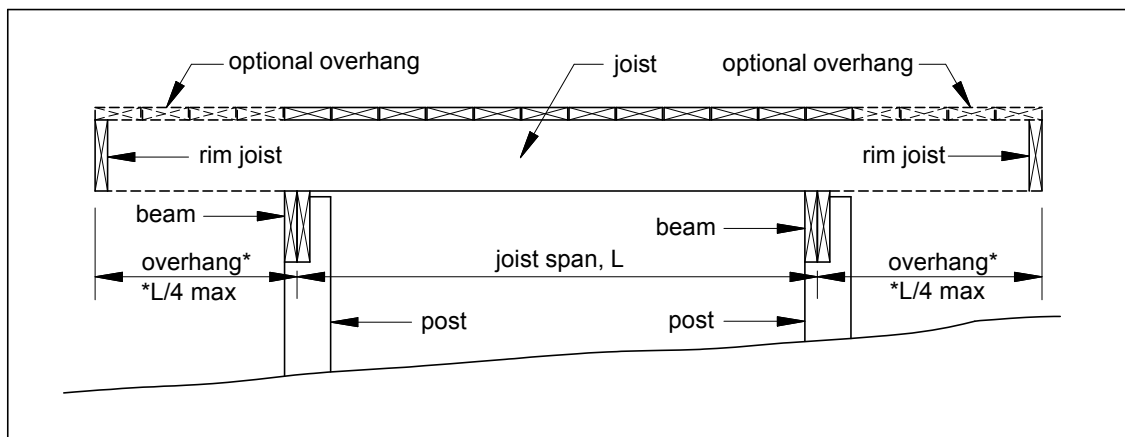


FIGURE 3: JOIST SPAN - FREE STANDING DECK

TABLE 1: MAXIMUM JOIST SPAN LENGTH, L

| Joist Size | Joists without Overhang | | | Joists with Overhang | | | Maximum Overhang* | | |
|------------|--------------------------|---------|--------|--------------------------|--------|--------|--------------------------|-------|--------|
| | joist spacing, on center | | | joist spacing, on center | | | joist spacing, on center | | |
| | 12" | 16" | 24" | 12" | 16" | 24" | 12" | 16" | 24" |
| 2x8 | 13'-8" | 12'-5" | 10'-2" | 10'-6" | 10'-6" | 10'-2" | 2'-7" | 2'-7" | 2'-6" |
| 2x10 | 17'-5" | 15'-10" | 13'-1" | 15'-2" | 15'-2" | 13'-1" | 3'-9" | 3'-9" | 3'-3" |
| 2x12 | 18'-0" | 18'-0" | 15'-5" | 18'-0" | 18'-0" | 15'-5" | 4'-6" | 4'-6" | 3'-10" |

***Maximum joist overhang limited to 1/4 joist span**

Spans are based on 40 PSF live load (60 PSF for overhangs), 10 PSF dead load, #2 Southern Pine, normal loading duration, wet service conditions, repetitive members (at least 3 joists), and a deflection limit of L/360 for the main span, and L/180 for the overhang. Design values for lumber taken from ANSI/AF&PA NDS-2005.

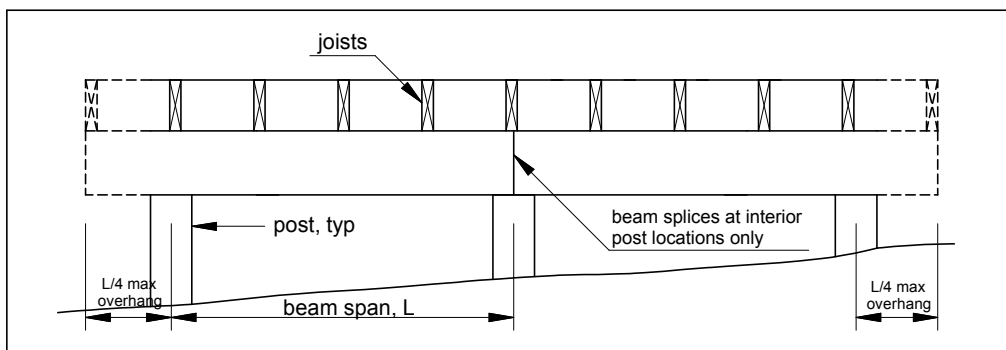


FIGURE 4: BEAM SPAN TYPES

TABLE 2: MAXIMUM BEAM SPAN (WITHOUT JOIST OVERHANG)

| Joist Span | Beam Size | | | | | |
|-----------------|------------------------------|----------|----------|---------------------------|----------|----------|
| | Beam <u>Without</u> Overhang | | | Beam <u>With</u> Overhang | | |
| | (2) 2x8 | (2) 2x10 | (2) 2x12 | (2) 2x8 | (2) 2x10 | (2) 2x12 |
| 0 - 6'-0" | 11'-6" | 13'-4" | 16'-3" | 9'-8" | 12'-6" | 15'-3" |
| 6'-1" - 8'-0" | 10'-4" | 11'-7" | 14'-3" | 8'-11" | 11'-4" | 13'-10" |
| 8'-1" - 10'-0" | 9'-5" | 10'-5" | 12'-9" | 8'-3" | 10'-6" | 12'-10" |
| 10'-1" - 12'-0" | 8'-7" | 9'-6" | 11'-8" | 7'-9" | 9'-8" | 11'-10" |
| 12'-1" - 14'-0" | 7'-11" | 8'-10" | 10'-10" | 7'-4" | 9'-0" | 11'-0" |
| 14'-1" - 16'-0" | 7'-5" | 8'-3" | 10'-2" | 7'-1" | 8'-5" | 10'-4" |
| 16'-1" - 18'-0" | 7'-0" | 7'-10" | 9'-7" | 6'-9" | 7'-11" | 9'-9" |

TABLE 3: MAXIMUM BEAM SPAN (WITH JOIST OVERHANG)

| Joist Span | Beam Size | | | | | |
|-----------------|------------------------------|----------|----------|---------------------------|----------|----------|
| | Beam <u>Without</u> Overhang | | | Beam <u>With</u> Overhang | | |
| | (2) 2x8 | (2) 2x10 | (2) 2x12 | (2) 2x8 | (2) 2x10 | (2) 2x12 |
| 0 - 6'-0" | 10'-5" | 11'-11" | 13'-5" | 8'-10" | 11'-4" | 13'-8" |
| 6'-1" - 8'-0" | 9'-4" | 10'-4" | 11'-8" | 8'-1" | 10'-3" | 11'-10" |
| 8'-1" - 10'-0" | 8'-4" | 9'-3" | 10'-6" | 7'-6" | 9'-5" | 10'-8" |
| 10'-1" - 12'-0" | 7'-7" | 8'-6" | 9'-7" | 7'-0" | 8'-7" | 9'-9" |
| 12'-1" - 14'-0" | 7'-1" | 7'-10" | 8'-11" | 6'-8" | 7'-11" | 9'-0" |
| 14'-1" - 16'-0" | 6'-7" | 7'-4" | 8'-4" | 6'-4" | 7'-5" | 8'-5" |
| 16'-1" - 18'-0" | 6'-3" | 6'-11" | 7'-10" | 6'-2" | 7'-0" | 7'-9" |

Beam members listed in TABLES 2 & 3, shall be attached together in accordance with FIGURE 5.

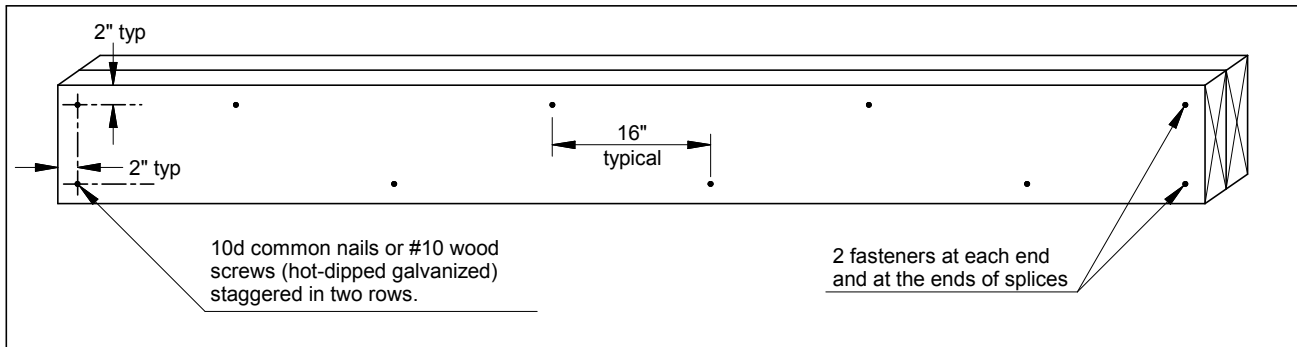


FIGURE 5: BEAM FASTENING DETAIL

DECK FRAMING PLAN

A framing plan shows the joist and beam layout, the location of the ledger board (if used), posts, footers, joist hangers (if used) and the type and size of ledger board fasteners. See FIGURE 6 for an example of a typical deck framing plan.

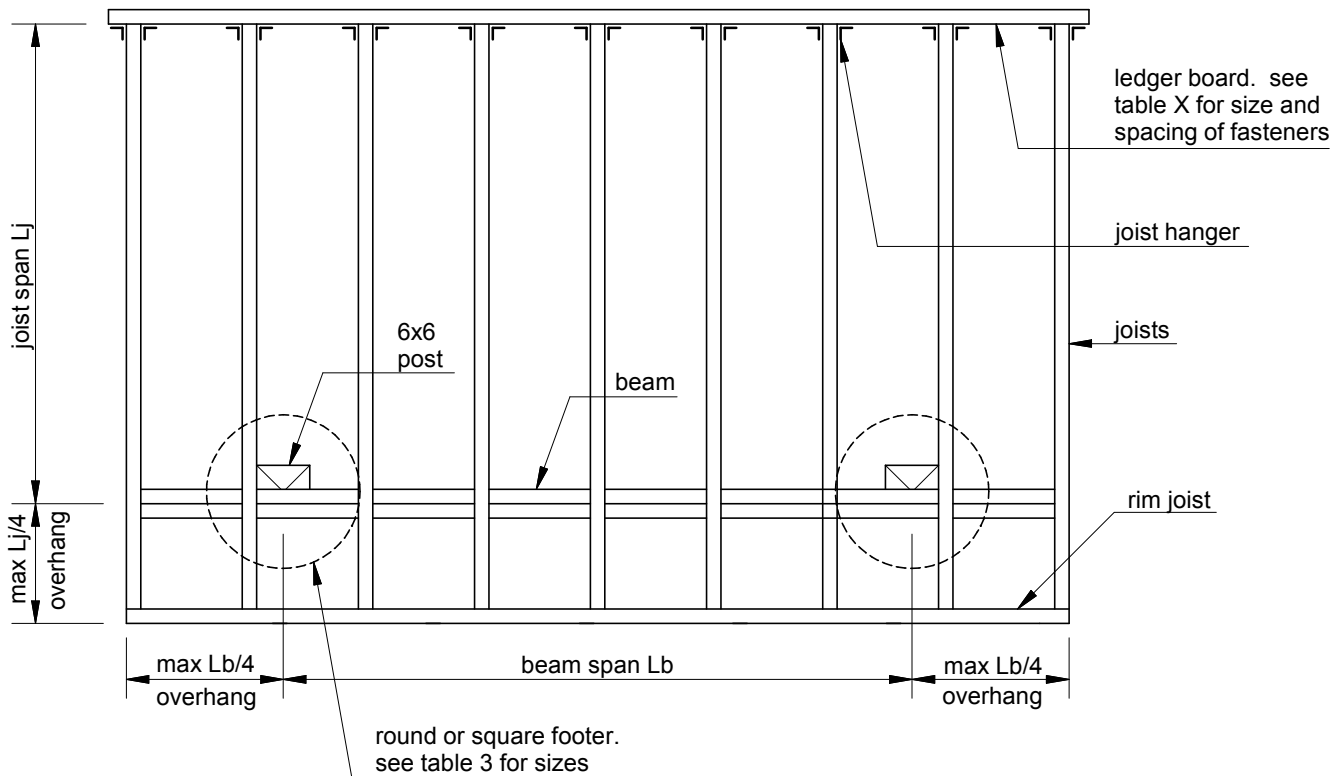


FIGURE 6: TYPICAL DECK FRAMING PLAN

JOIST-TO-BEAM CONNECTIONS

Each joist shall be attached to the beam as shown in FIGURE 7. Use Option 1 or Option 2 when joists bear on or overhang past the beam; see FIGURE 1 and FIGURE 3. Use Option 3 when joists attach to the side of the beam; see FIGURE 2. Mechanical fasteners or hurricane clips used in Option 2 shall have a minimum rated capacity of 100 lbs. in both uplift and lateral load directions. See manufacturer's installation instructions for additional requirements. See JOIST HANGERS information below for more information.

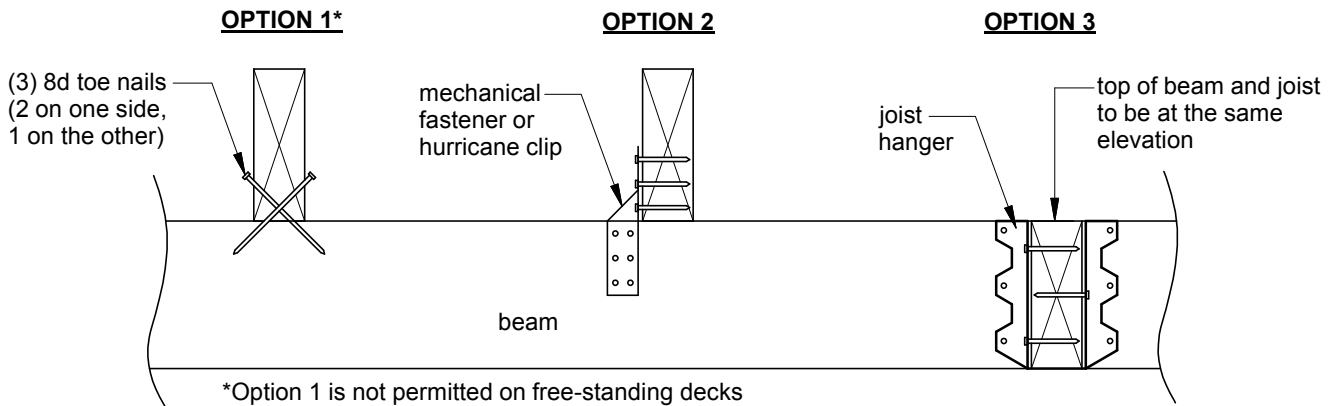


FIGURE 7: JOIST-TO-BEAM CONNECTION DETAILS

JOIST HANGERS

Joist hangers, as shown in FIGURE 8, shall have a minimum capacity of 600 lbs for 2x8s, 700 lbs for 2x10s and 800 lbs for 2x12s. The depth and width of the joist hanger shall equal the dimensions of the member it is carrying. Joist hangers shall be galvanized per the requirements on Sheet 2, and the size and type of fasteners used with the joist hanger shall be as specified by the manufacturer.

Use joist hangers with inside flanges when clearances to the end of the beam or ledger board dictate.

Do not use clip angles or brackets to support framing members. Do not bend hanger flanges to accommodate field conditions.

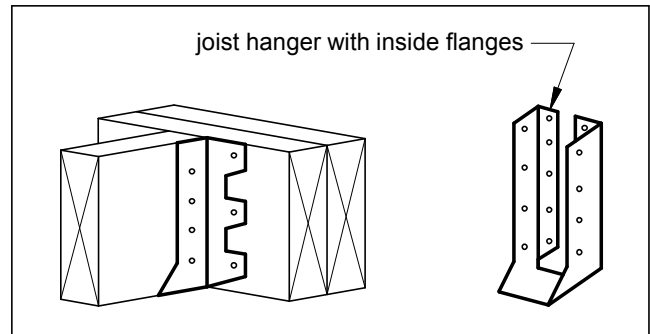


FIGURE 8: TYPICAL JOIST HANGERS

POST REQUIREMENTS

All deck posts shall be 6x6 with a maximum height of 14'-0" measured from the top of the footer to the underside of the beam. The beam shall be attached to the post by one of the two methods shown in FIGURE 10. Attachment of the beam to the side of the post without notching is not permitted; see FIGURE 9.

The post cap shown in FIGURE 10, Option 2, shall be specifically designed for the beams used and 6x6 posts, with a minimum vertical load capacity of 5,000 lbs. Post cap attachments shall be per the manufacturer's recommendations, and post caps shall be galvanized per the requirements specified on Sheet 2.

Cut ends of posts shall be field treated with a wood preservative containing **copper naphthenate** containing a minimum of 2.0% copper metal. This wood preservative can be found in most hardware or home center stores in the paint department.

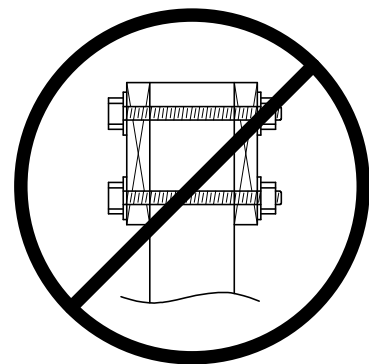


FIGURE 9: THIS POST-TO-BEAM ATTACHMENT IS NOT PERMITTED!

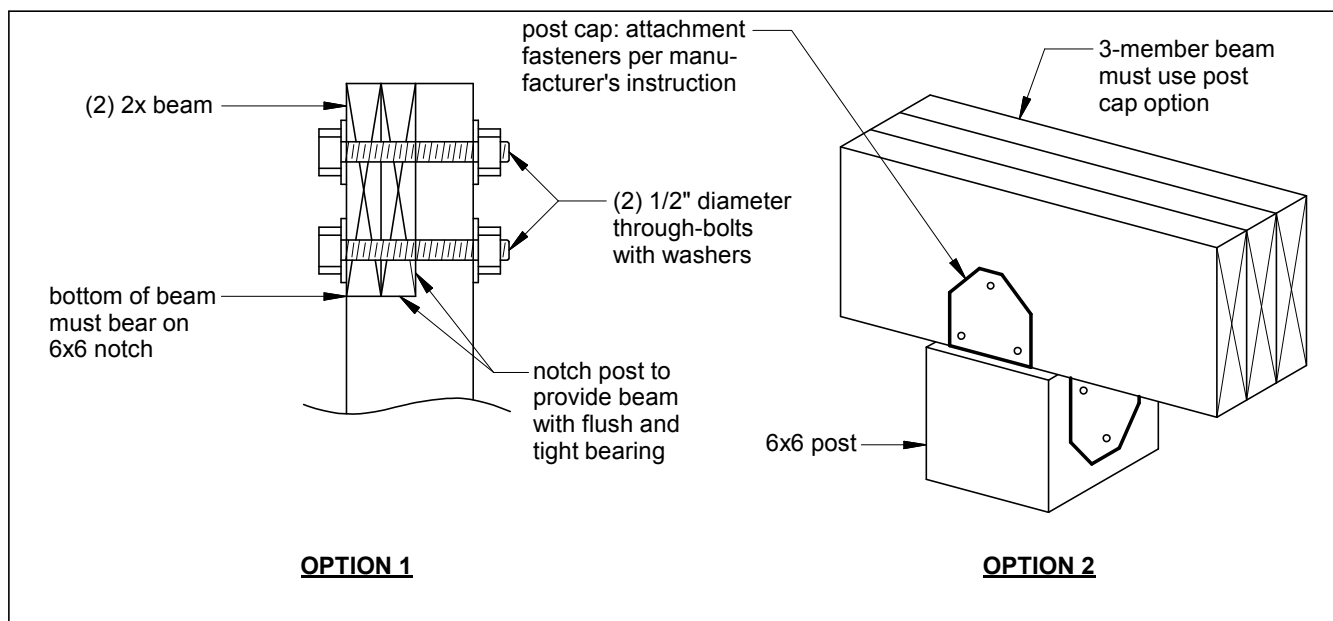


FIGURE 10: POST-TO-BEAM CONNECTION METHODS

RIM JOIST REQUIREMENTS

Attach a continuous rim joist to the ends of joists as shown in FIGURE 11. Attach decking to the rim joist as shown in FIGURE 11. For additional decking attachment requirements, see DECKING REQUIREMENTS on Sheet 2.

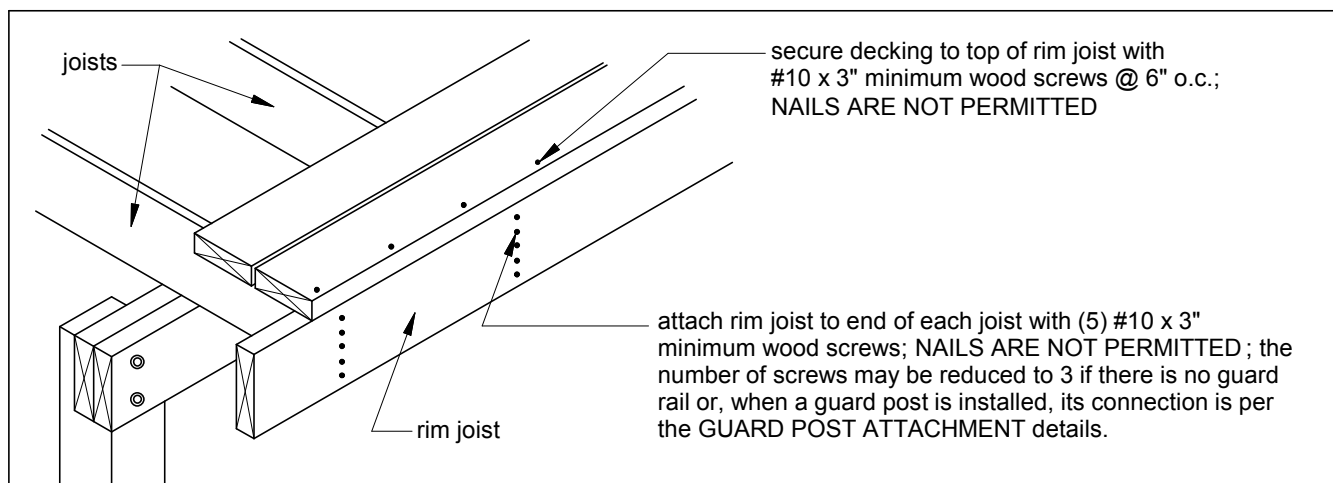


FIGURE 11: RIM JOISTS CONNECTION DETAILS

FOOTINGS

Concrete for footings shall have a minimum compressive strength of 2,500 psi. See TABLE 4 for minimum footing size and thickness; see FIGURE 12 for post attachment options and minimum requirements. Post anchor shall be galvanized per the requirements on Sheet 2.

Footing designs are based upon an allowable soil bearing pressure of 2,000 PSF, and are designed to support only the dead and live loads of the deck. Footings are NOT designed to support possible additional future construction loads such as walls or a roof. All footings must bear on solid ground: bearing conditions shall be verified by the City's Inspectors prior to placement of concrete. Soils which do not have a bearing pressure of 2,000 PSF (such as backfill adjacent to a house) must have an analysis and footings designed by a geotechnical engineer, or have the bottom of the footer located on soil which can support a minimum of 2,000 PSF.

TABLE 4: FOOTING SIZE

| Beam Span, Lb | Joist Span, Lj | Footing Size | | Minimum Thickness* |
|-----------------|-----------------|--------------|-------|--------------------|
| | | Square | Round | |
| 0 - 8'-0" | 0 - 10'-0" | 16" | 18" | 8" |
| | 10'-1" - 14'-0" | 16" | 18" | 8" |
| | 14'-1" - 18'-0" | 18" | 20" | 10" |
| 8'-1" - 12'-0" | 0 - 10'-0" | 16" | 18" | 8" |
| | 10'-1" - 14'-0" | 22" | 24" | 10" |
| | 14'-1" - 18'-0" | 22" | 24" | 10" |
| 12'-1" - 16'-3" | 0 - 10'-0" | 22" | 24" | 10" |
| | 10'-1" - 14'-0" | 24" | 26" | 12" |

* A pre-manufactured post base may have a footing thickness requirement greater than the value in the table above due to the dimension of the cast-in-place anchor. In such a case, the manufacturer's specified minimum footing thickness shall govern.

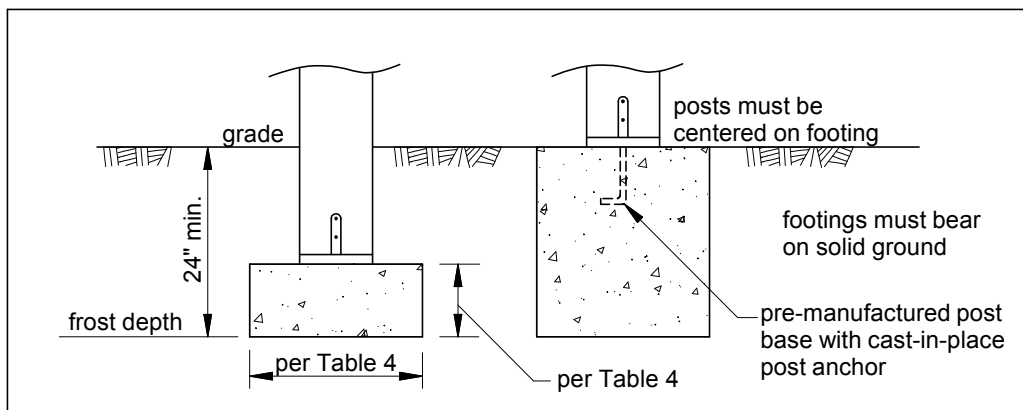


FIGURE 12: TYPICAL FOOTINGS

LEDGERBOARD ATTACHMENT REQUIREMENTS

The ledger board shall be equal to or greater in depth than the joists and shall be attached to the existing exterior wall in accordance with FIGURE 14 through FIGURE 16. When attached to an existing house band board, the band board shall be capable of supporting the new deck. If the existing house bandboard condition cannot be verified, or conditions differ from the details herein, a free-standing deck is the only allowable option. See FREE-STANDING DECKS on Sheet 12.

Existing house conditions **MUST** be verified **PRIOR** to applying for a building permit. Compliance with all of the requirements herein is critical to ensure the structural stability of the deck, and the safety of the occupants.

A ledger board must be installed in direct contact with the wood framing of a house, or in direct contact with exterior sheathing with a maximum thickness of 1/2". The siding or other exterior finish of the house must be removed prior to the installation of the ledger board. Flashing is required at the connection of the ledgerboard to wood framing and the flashing shall be made of copper (attached with copper fasteners), stainless steel, UV resistant plastic, or galvanized steel coated with a minimum of 1.85 oz/sf of zinc (G-185 coating). See FIGURE 14 for continuous flashing with drip edge. A door threshold must be carefully flashed and caulked to prevent water intrusion from rain, melting snow or ice.

Many newer houses are constructed with wood I-joists (see FIGURE 13 for an example), and may have a 1" or thicker manufactured engineered wood product (EWP) band board which can support the attachment of a deck; see FIGURE 14. However, not all houses which are constructed with wood I-joists have this EWP band board; some may have plywood and some may have an I-joist used as a band board. For these conditions, a free-standing deck is the only allowable option. See FREE-STANDING DECKS on Sheet 12.

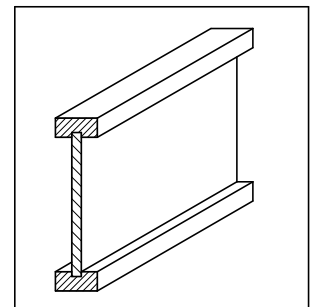


FIGURE 13: WOOD I-JOIST PROFILE

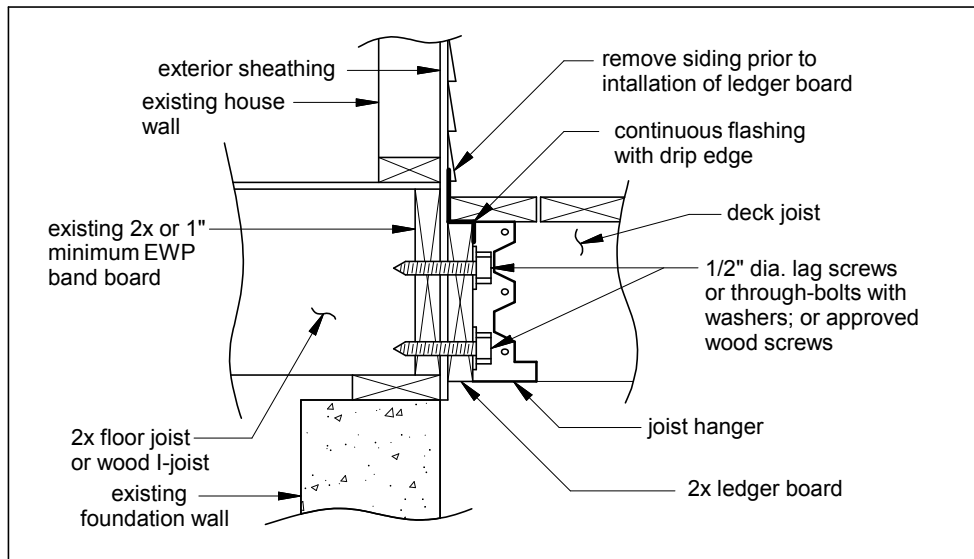


FIGURE 14: ATTACHMENT OF LEDGER BOARD-TO-BAND BOARD

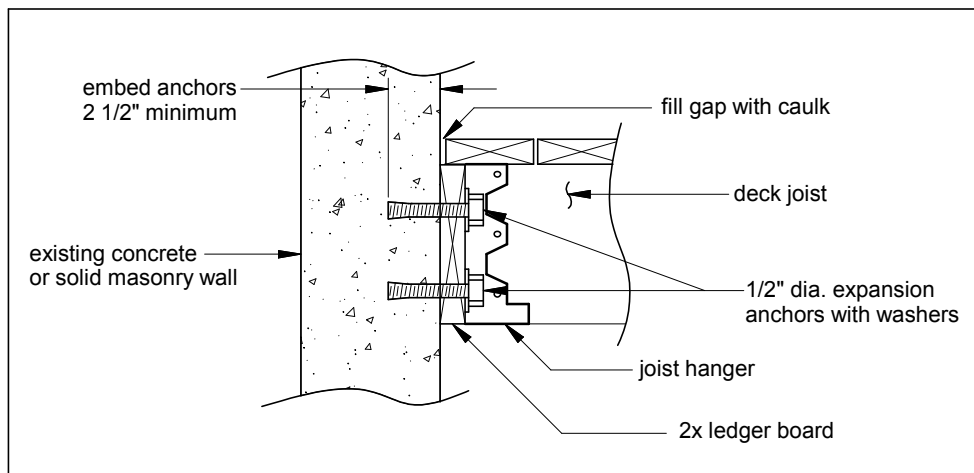


FIGURE 15: ATTACHMENT OF LEDGER BOARD-TO-FOUNDATION WALL (CONCRETE OR SOLID MASONRY)

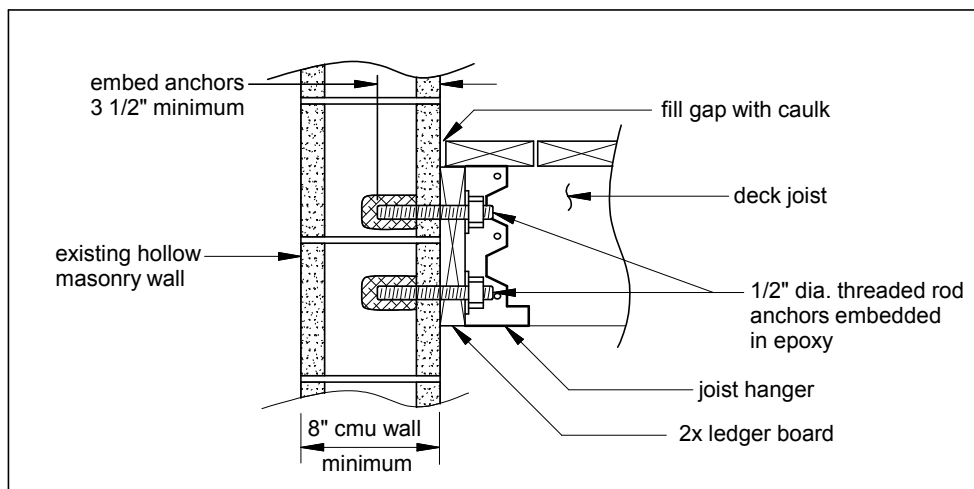


FIGURE 16: ATTACHMENT OF LEDGER BOARD-TO-HOLLOW CMU FOUNDATION WALL

PROHIBITED LEDGER ATTACHMENTS

Attachments to the ends of pre-manufactured open web joists, to brick veneer or chimneys, and to house overhangs or bay windows are strictly prohibited: see FIGURE 17 through FIGURE 19. For these conditions, a free-standing deck is the only allowable option. See FREE-STANDING DECKS on Sheet 12.

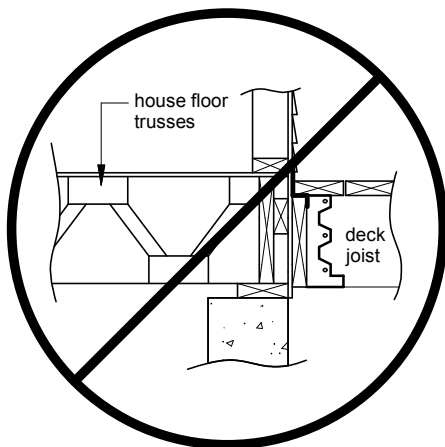


FIGURE 17: NO ATTACHMENT TO OPEN WEB TRUSSES

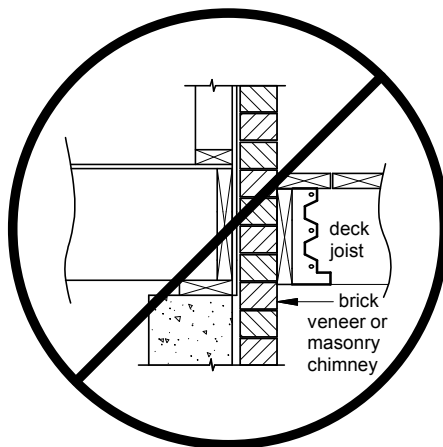


FIGURE 18: NO ATTACHMENT TO OR THROUGH BRICK VENEER

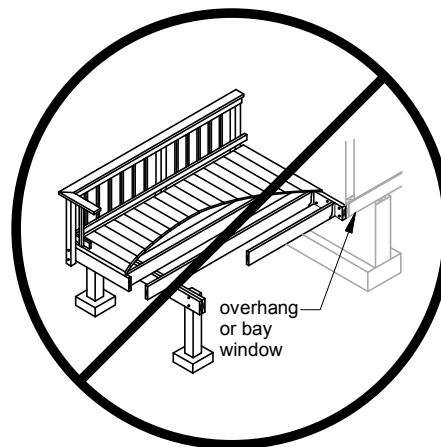


FIGURE 19: NO ATTACHMENT TO HOUSE OVERHANG

LEDGER BOARD FASTENERS

Ledger board fasteners shall be installed in accordance with FIGURE 20 and the spacing in TABLE 5. Only those fastener types shown are approved for use: LEAD ANCHORS ARE PROHIBITED.

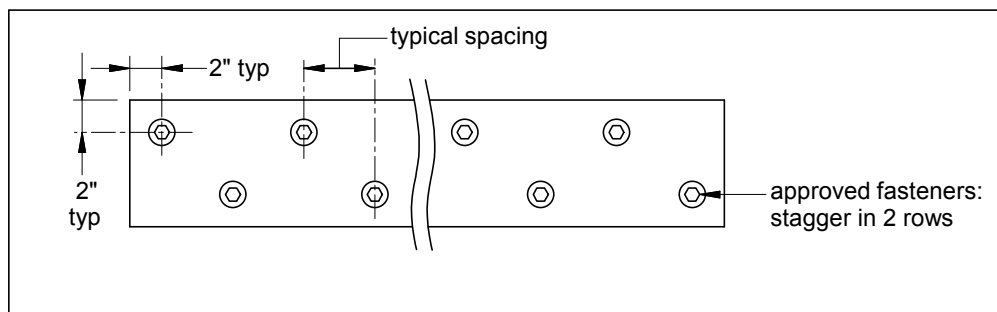


FIGURE 20: LEDGER BOARD FASTENER SPACING AND CLEARANCES

TABLE 5: LEDGER BOARD FASTENER SPACING

| Fastener | Band Board Material ¹ | Joist Span | | | | | | |
|------------------------|----------------------------------|---------------------------------|----------------|-----------------|------------------|------------------|------------------|------------------|
| | | 0 to 6'-0" | 6'-1" to 8'-0" | 8'-1" to 10'-0" | 10'-1" to 12'-0" | 12'-1" to 14'-0" | 14'-1" to 16'-0" | 16'-1" to 18'-0" |
| | | Spacing of Fasteners, on center | | | | | | |
| Lag Screws | 1" EWP | 24" | 18" | 14" | 12" | 10" | 9" | 8" |
| | 1 1/8" EWP | 28" | 21" | 16" | 14" | 12" | 10" | 9" |
| | 2x lumber | 30" | 23" | 18" | 15" | 13" | 11" | 10" |
| Through Bolts | 1" EWP | 24" | 18" | 14" | 12" | 10" | 9" | 8" |
| | 1 1/8" EWP | 28" | 21" | 16" | 14" | 12" | 10" | 9" |
| | 2x lumber | 36" | 36" | 34" | 29" | 24" | 21" | 19" |
| Approved Wood Screws | 1" EWP | 18" | 13" | 11" | 9" | 8" | 7" | 6" |
| | 1 1/8" EWP | 21" | 15" | 12" | 10" | 9" | 7" | 7" |
| | 2x lumber | 19" | 14" | 11" | 9" | 8" | 7" | 6" |
| Expansion Anchors | | 36" | 36" | 34" | 29" | 24" | 21" | 19" |
| Approved Epoxy Anchors | | 32" | 32" | 28" | 24" | 20" | 16" | 16" |

¹ EWP = manufactured Engineered Wood Product: see sheet 8 for more information

Through-Bolts

Through-bolts shall have a minimum diameter of 1/2". Pilot holes for through-bolts shall be 17/32" to 9/16" in diameter. Through-bolts must be equipped with washers at the bolt head and nut.

Expansion Anchors

Use expansion anchors when attaching a ledger board to a concrete or solid masonry wall as shown in FIGURE 15. Bolt diameters of the anchors shall be a minimum of 1/2" (in some cases, a nominal 5/8" anchor will have an actual bolt diameter of 1/2"). Minimum embedment length shall be 2-1/2". Expansion anchors must have washers. Approved epoxy anchors may be substituted for expansion anchors; see the following for minimum requirements.

Epoxy Anchors

When attaching a ledger board to hollow masonry, use one of the approved epoxy anchors listed in TABLE 6 and install as shown in FIGURE 16. Epoxy anchors shall have a minimum diameter of 1/2" and a minimum embedment length of 3-1/2". Installation shall be in accordance with the manufacturer's installation instructions. Epoxy anchors must have washers.

TABLE 6: APPROVED EPOXY ANCHORS

| Manufacturer | Product |
|---------------------|-----------------|
| ITW Ramset/Red Head | Epcon Acrylic 7 |
| Hilti | HY-20 |

Lag Screws

Lag screws shall have a minimum diameter of 1/2" and shall be hot-dipped galvanized or stainless steel. Lag screws may only be used when the field conditions match those shown in FIGURE 14. See FIGURE 21 for minimum lag screw length and shank requirements. All lag screws shall be installed with washers.

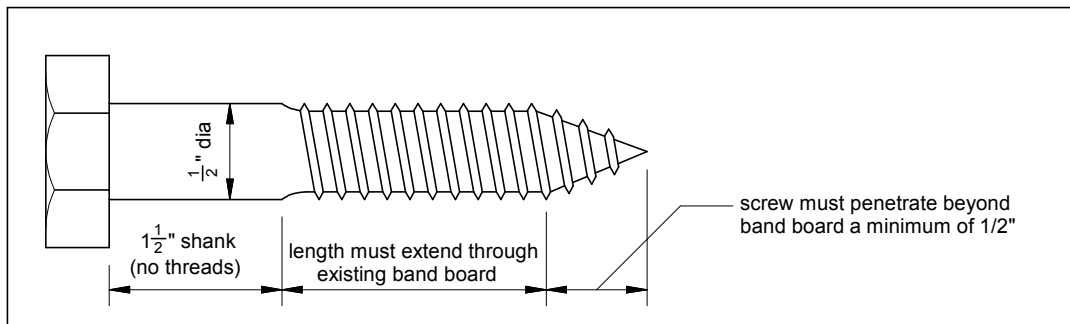


FIGURE 21: LAG SCREW REQUIREMENTS

LAG SCREW INSTALLATION REQUIREMENTS: Each 1/2" dia. lag screw shall have pilot holes drilled as follows: 1) Drill a 1/2" dia. hole in the ledger board; 2) Drill a 5/16" diameter hole into the solid connection material (existing house band board) of the house. **DO NOT DRILL A 1/2" DIA HOLE INTO THE HOUSE BAND BOARD!**

The threaded portion of the lag screw shall be inserted into the pilot hole by turning. **DO NOT DRIVE WITH A HAMMER!** Use soap or other wood compatible lubricant as required to facilitate tightening. Each lag screw shall have a flat washer and be thoroughly tightened **SNUG**, but shall not be overly tightened so as to cause wood damage to the house band board.

Wood Screws

Approved wood screws listed in TABLE 7 are similar to lag screws and have an integral washer. No pilot hole is required for installation. The screws have a minimum diameter not less than 1/4" and shall be of sufficient length to fully penetrate the existing house band board. Installation shall be in conformance with the manufacturer's installation instructions.

TABLE 7: APPROVED WOOD SCREWS

| Manufacturer | Product |
|--------------------|--------------------------|
| FastenMaster | LedgerLok |
| Simpson Strong-Tie | Strong-Drive Screw (SDS) |

FRAMING AT CHIMNEY OR BAY WINDOW

All members at a chimney or bay window shall be framed in accordance with FIGURE 22. Headers may span a maximum of 6'-0". Where a chimney or bay window is wider than 6'-0", one or more 6x6 posts may be added to reduce header spans to less than 6'-0". The footers for such 6x6 posts must meet the requirements on Sheet 8.

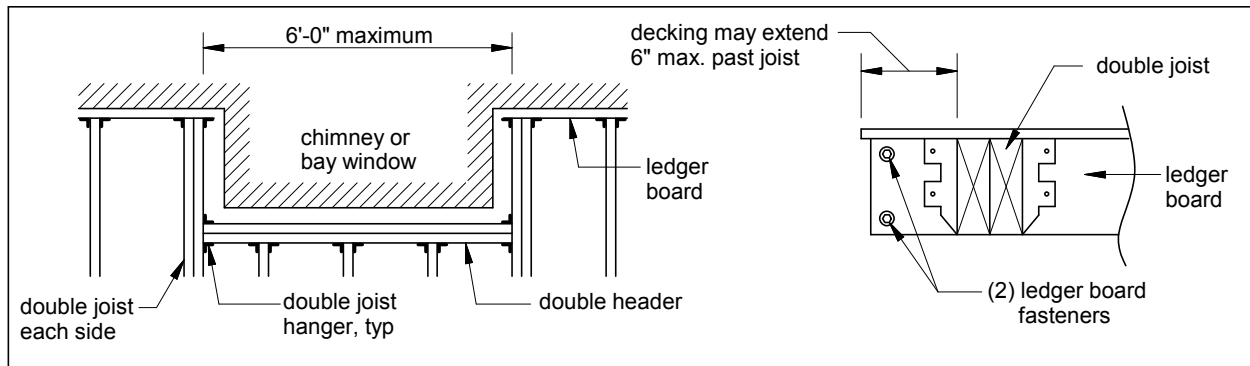


FIGURE 22: REQUIREMENTS FOR FRAMING AT CHIMNEY OR BAY WINDOW

FREE STANDING DECKS

Decks which are free-standing do not utilize the exterior wall of the house to support vertical loads; instead, an additional beam with posts is provided at, or offset from, the existing house.

Footers sizes shown in Table 3 are based upon an allowable soil bearing value of 2000 PSF. The soil bearing value of backfilled soil close to a house foundation, is often less than 2000 PSF. If looser soil is encountered close to a house, there are two options for footers:

- 1) Dig the hole down to virgin soil which can support 2000 PSF,
 - 2) Have a geotechnical engineer test the soil for bearing value, and design a footer based upon the tested value.
- City inspectors probe the soil at the bottom of a hole, for a gross determination of the soil bearing condition. Soil which can easily be penetrated by the inspector's probe will not pass inspection.

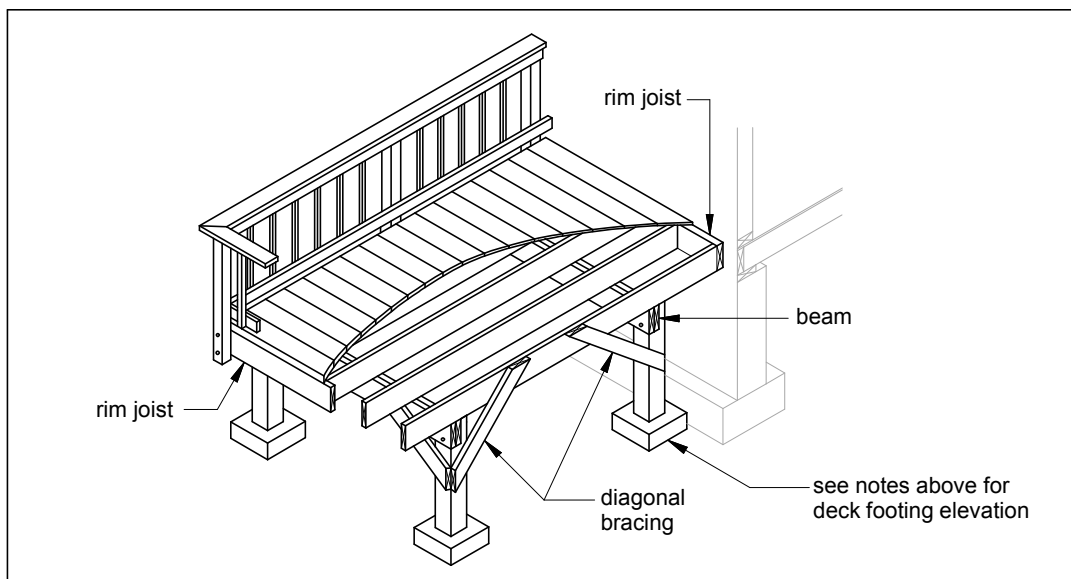


FIGURE 23: FREE-STANDING DECK

LATERAL SUPPORT OF FREE-STANDING DECKS

Free standing decks higher than 2 feet above grade shall have bracing to resist lateral loads and horizontal movement. Diagonal bracing shall be provided or the deck shall be attached to the exterior wall of the house.

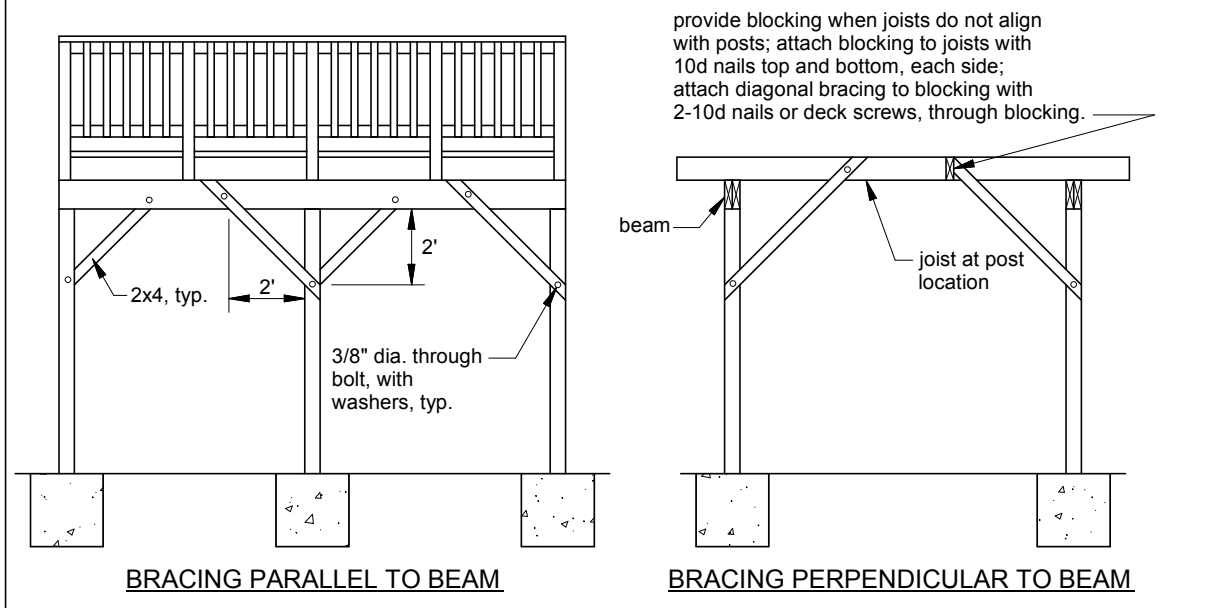


FIGURE 24: DIAGONAL BRACING REQUIREMENTS

DIAGONAL BRACING: Provide diagonal bracing both parallel and perpendicular to the beam at each post as shown in FIGURE 24. When parallel to the beam, the bracing shall be bolted to the post at one end and the beam at the other. When perpendicular to the beam, the bracing shall be bolted to the post at one end and a joist at the other. When a joist does not align with the bracing location, provide blocking between the next adjacent joists; attach as noted in the figure.

ATTACHMENT TO HOUSE: Attach the deck rim joist to the existing house exterior wall as shown in FIGURE 25. The wall must be sheathed with a minimum 3/8" structural panel sheathing. Use lag screws or through-bolts when fastening to an existing band board or wall stud; use expansion anchors or epoxy anchors when fastening to concrete or masonry. **LEAD ANCHOR ARE NOT PERMITTED! DO NOT USE THIS ATTACHMENT METHOD IF A BRICK VENEER IS PRESENT. YOU MUST VERIFY THIS CONDITION PRIOR TO UTILIZING THIS METHOD.** Fasteners shall be 16" on center and staggered in 2 rows. Flashing over the rim joist is required and must be installed in accordance with the flashing provisions on Sheet 8.

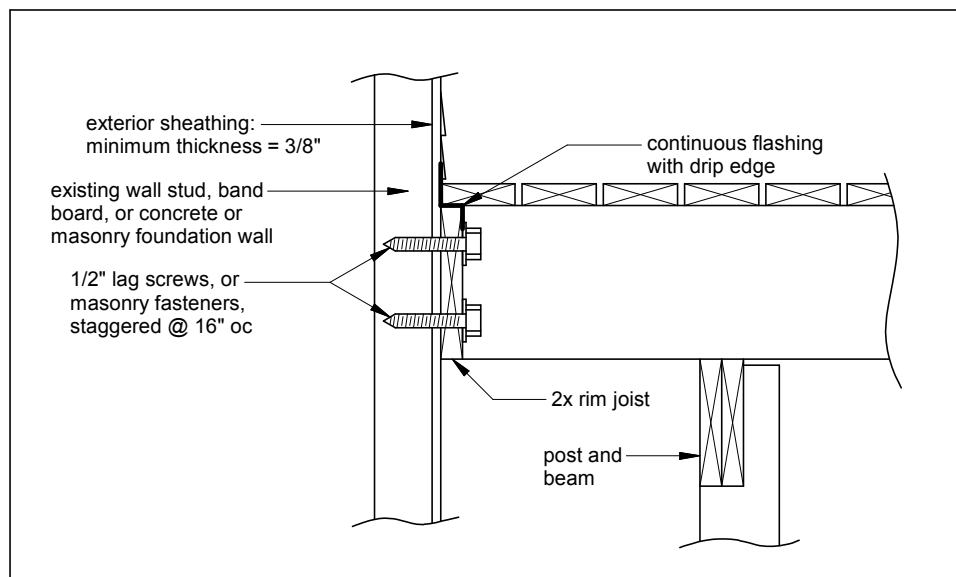


FIGURE 25: ATTACHMENT TO HOUSE FOR LATERAL SUPPORT

GUARD REQUIREMENTS

All decks higher than 30" above grade or a platform below, are required to have a guard. If you are providing a guard when one is not required, it must meet the following requirements. All guards shall be constructed in strict conformance with the following details.

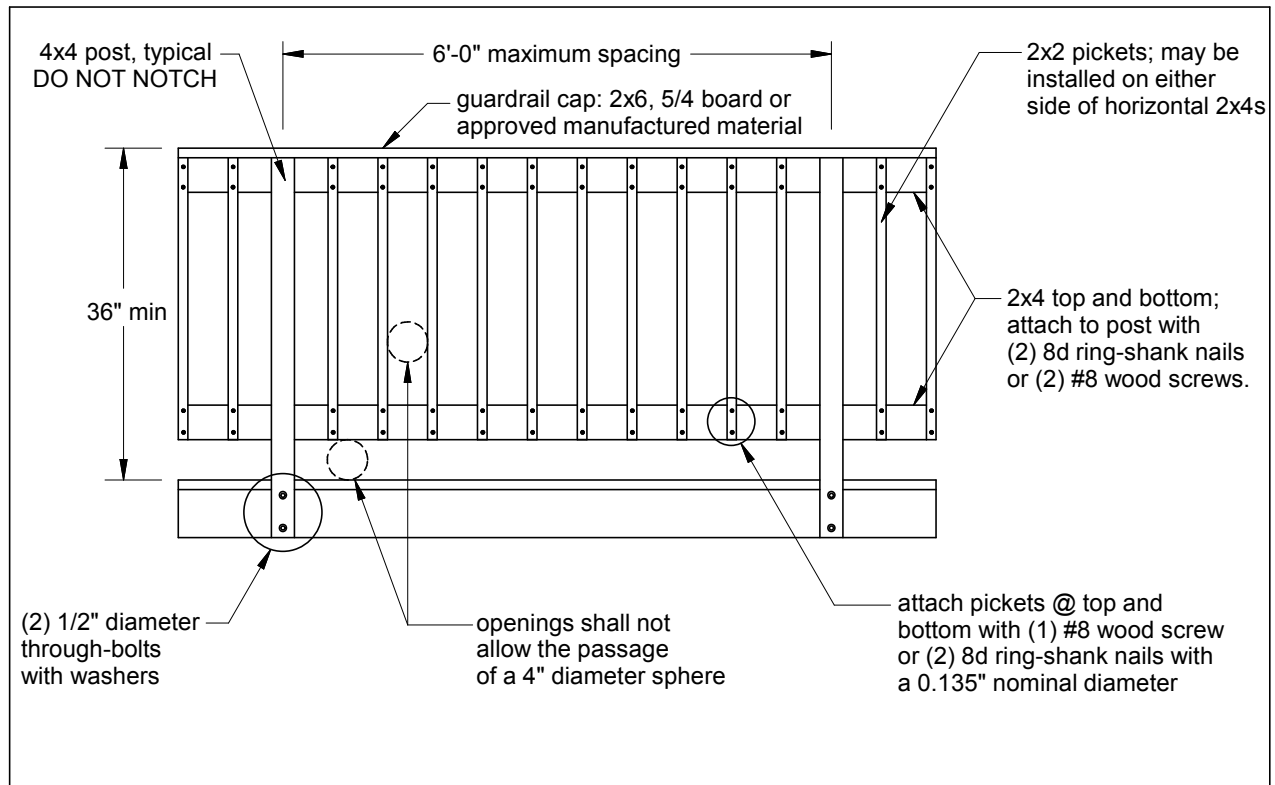


FIGURE 26: TYPICAL GUARD DETAIL

The guardrail cap may be composed of approved lumber or plastic or composite material provided the product has an approved evaluation report from an accredited testing agency which lists the product. The evaluation report must be submitted with the plans and application, and a copy must be on the jobsite and available to the inspector during the inspection process.

Pre-manufactured guard systems constructed of pre-fabricated wood, plastic, or other composite materials must have an evaluation report submitted with the permit application and plans. **ONLY THOSE SYSTEMS LISTED BY AN ACCREDITED TESTING AGENCY WILL BE CONSIDERED.**

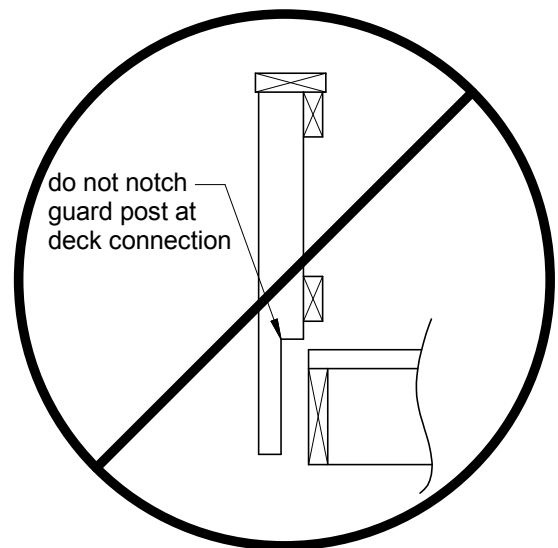


FIGURE 27: PROHIBITED NOTCHING AT GUARD POSTS

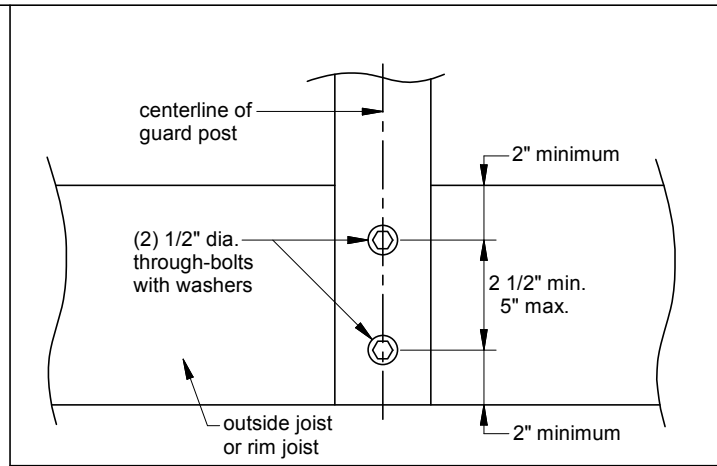


FIGURE 28: GUARD POST ATTACHMENT DETAIL

GUARD POST ATTACHMENTS

Guard posts must be securely fastened to the deck framing to ensure the the entire guard can resist all imposed loads. Whether a guard post is attached to the outside joist or the band joist, the adjacent framing must be reinforced with **hold-down anchors** as shown in the attachment figures.

Acceptable **hold-down anchors** are Simpson StrongTie HD2AHDG, USP DTB-TZ and DeckLok Advanced Lateral Anchor. Other connectors which have been tested by an independent testing agency, and shown to be able to resist an allowable minimum tension load of 1800# may be used. All anchors must meet the minimum corrosion resistance specified on page 2.

GUARD POST TO OUTSIDE-JOIST

Guard posts for guards which run parallel to the deck joists (the side of the deck) shall be attached to the outside-joist using the method shown in FIGURE 29.

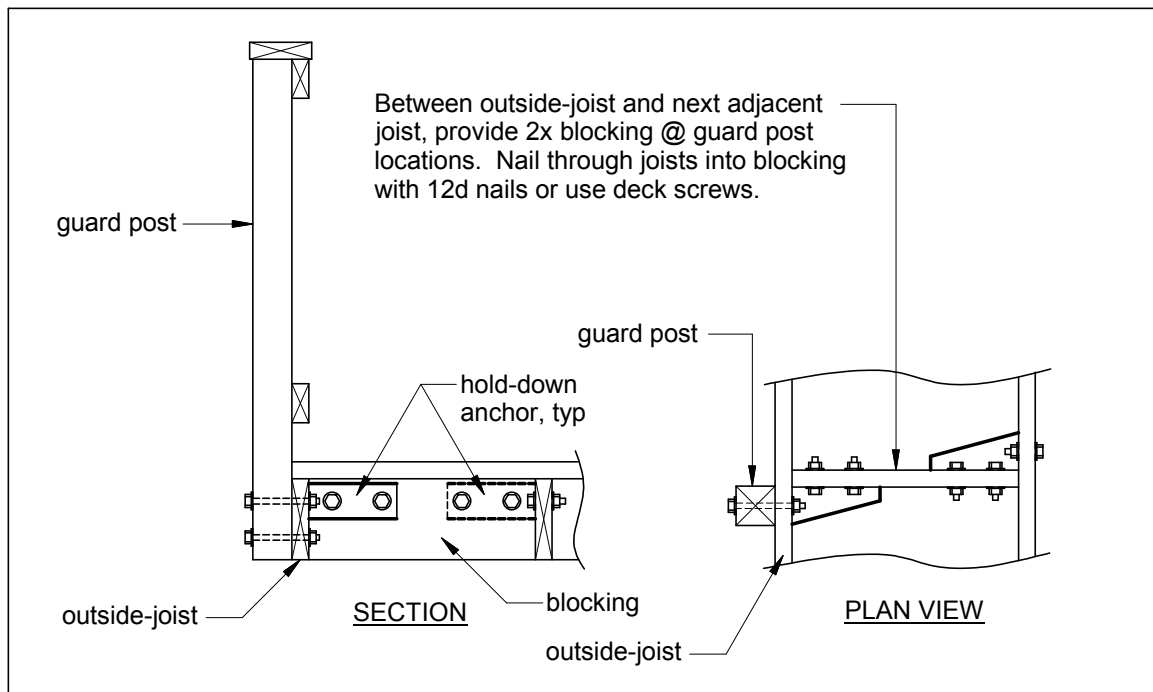


FIGURE 29: GUARD POST TO OUTSIDE JOIST DETAIL

GUARD POST TO RIM JOIST: Use FIGURE 30 to attach a guard post to a rim joist. See FIGURE 11 on sheet 7 for rim joist-to-deck and decking-to-rim joist attachment requirements.

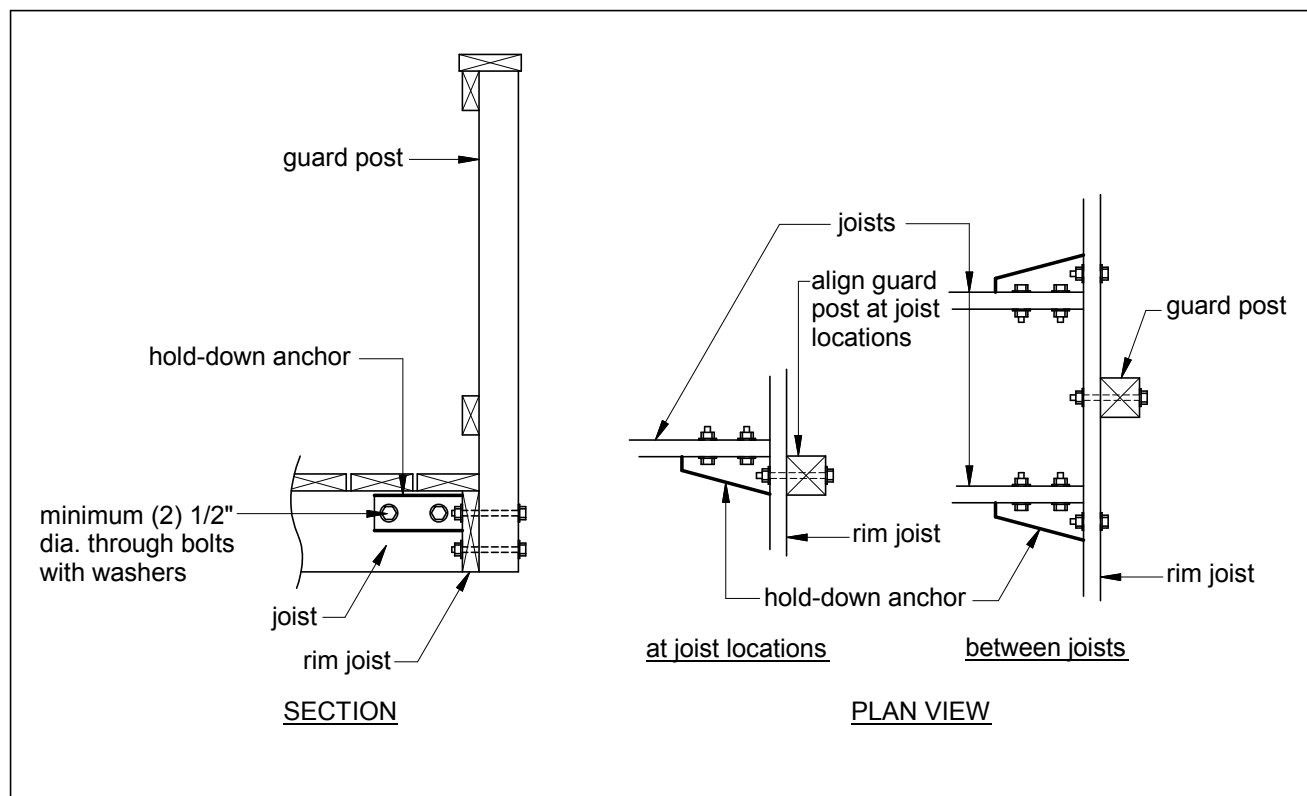


FIGURE 30: GUARD POST TO RIM JOIST DETAIL

STAIR REQUIREMENTS

STAIR GEOMETRY: Stairs shall be a minimum of 36" in width as shown in FIGURE 37. Tread, riser and nosing dimensions, opening limitations and tolerances shall meet the requirements shown in FIGURE 31. Treads may be constructed from 2x lumber and span 36", or 5/4 boards and span 18". See FIGURE 33. An approved manufactured material may be substituted for wood treads, provided the construction is within the product limitations listed in its evaluation report. See Decking Requirements on Sheet 2 for more information. Risers may be constructed from 1x lumber minimum.

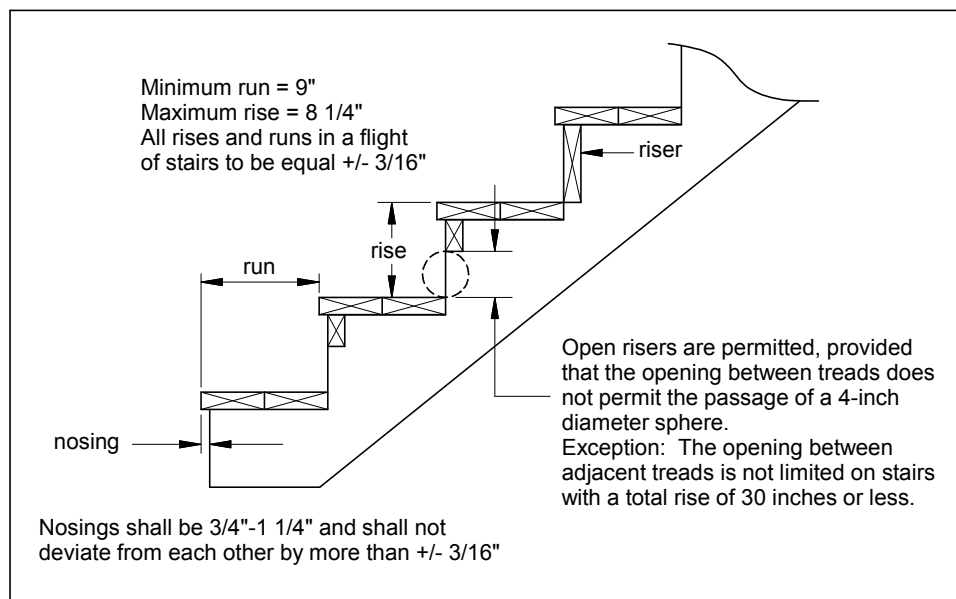


FIGURE 31: TREAD AND RISER DETAIL

STAIR STRINGERS: Stair stringers shall be cut from 2x12s to meet the stair geometry requirements shown in FIGURE 31. Stair stringers shall be spaced no more than 18" oc, except that uncut 2x12s with cleats may be spaced 36" apart when using 2x treads, as shown in FIGURE 33.

Stringer spans shall not exceed the values shown in FIGURE 32. If a stringer span exceeds the limits shown, a 4x4 post may be provided to support the stringer at mid span to shorten its span length. The 4x4 post shall be notched and bolted to the stringer with (2) 1/2" dia. through-bolts with washers per FIGURE 10. The post shall be centered on a 12" dia. or 10" square, 4" thick conc. footing. The footing shall bear 24" below grade, and the post shall be attached to the footing per FIGURE 12. An intermediate landing may also be provided to shorten the stringer span.

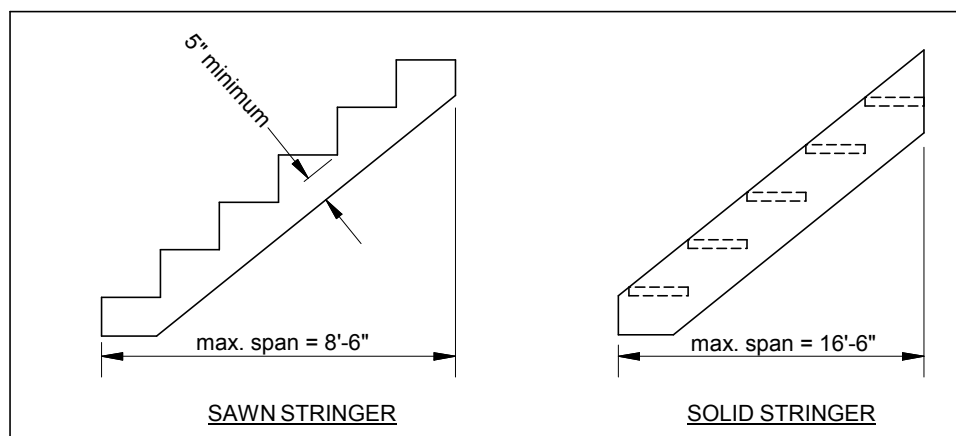


FIGURE 32: STAIR STRINGER REQUIREMENTS

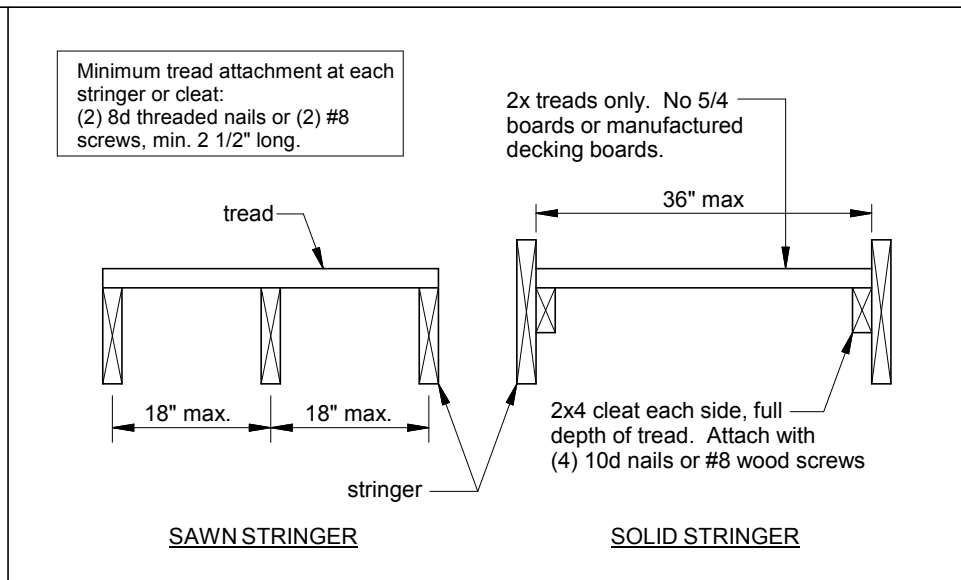


FIGURE 33: TREAD CONNECTION REQUIREMENTS

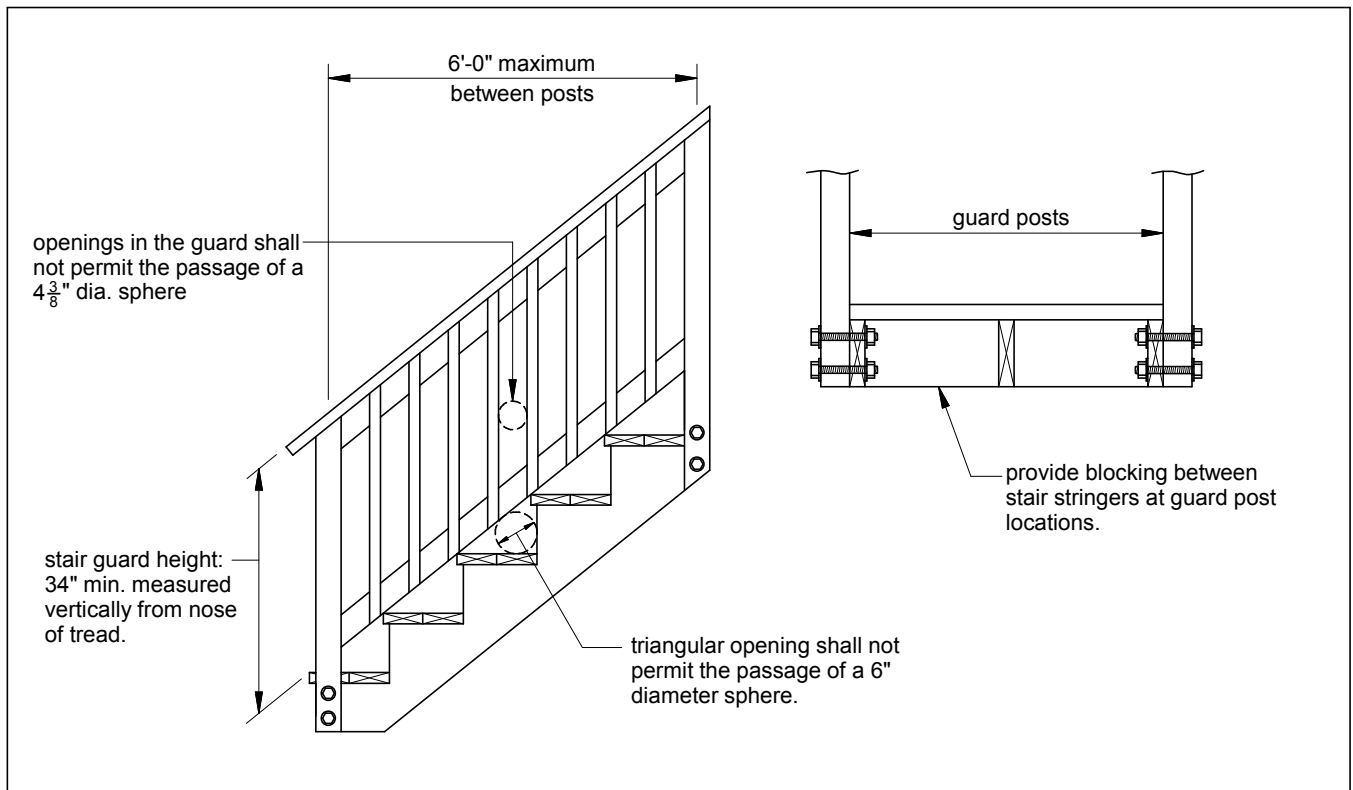


FIGURE 34: STAIR GUARD REQUIREMENTS

STAIR GUARDS: A guard is required on the open side of stairs with a total rise of more than 30". See GUARD REQUIREMENTS for additional minimum construction requirements.

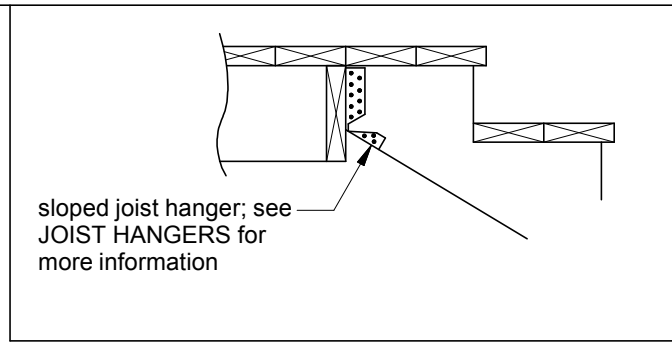


FIGURE 35: STAIR STRINGER ATTACHMENT DETAIL

STAIR FOOTING REQUIREMENTS: Where the stairway meets grade, the stringers shall bear on a min. 4" concrete pad, or attach to 4x4 posts as shown in FIGURE 36. The pad shall be sized such that all stringers have complete bearing on concrete and do not come in contact with the ground.

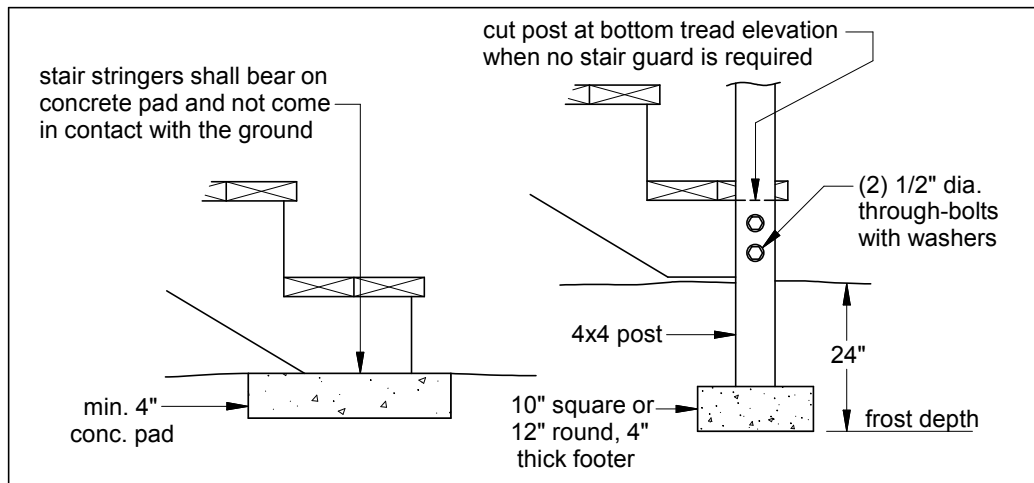


FIGURE 36: STAIR STRINGER BEARING AT GRADE

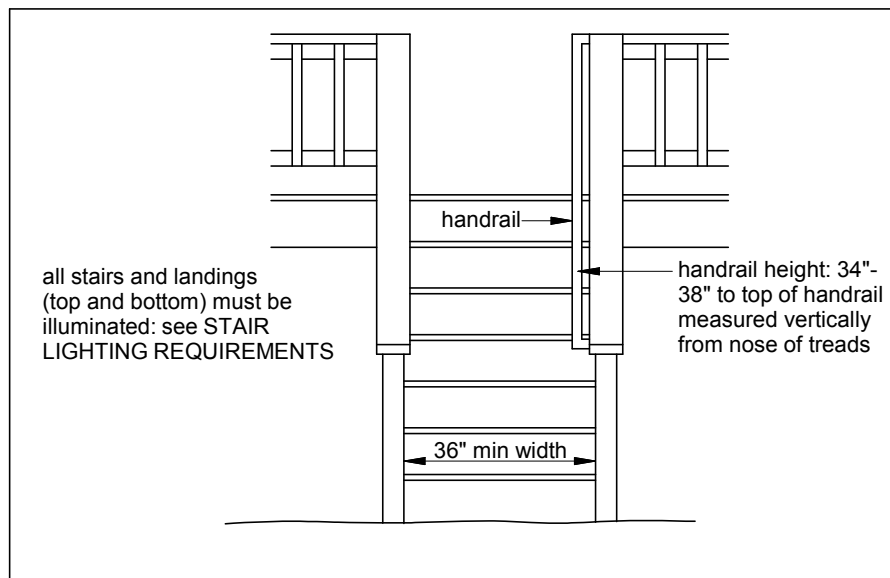


FIGURE 37: MISCELLANEOUS STAIR REQUIREMENTS

STAIR LIGHTING REQUIREMENTS: Stairways shall have a light source located at the top landing such that all stairs and landings are illuminated. The light switch shall be operated from inside the house or may be controlled by a motion detector or timer. The minimum illumination level shall be 1 foot-candle (11 lux) at the walking surface level.

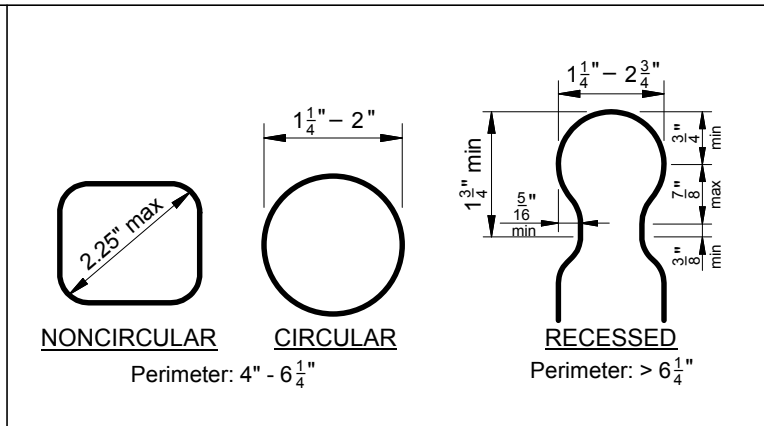


FIGURE 38: HANDRAIL GRASPABILITY TYPES/GEOMETRY

Handrails shall be continuous from a point directly over the lowest riser to a point directly over the highest riser and shall return to the guardrail at each end; see FIGURE 37. Handrails may be interrupted by guardrail posts only at a turn in the stair.

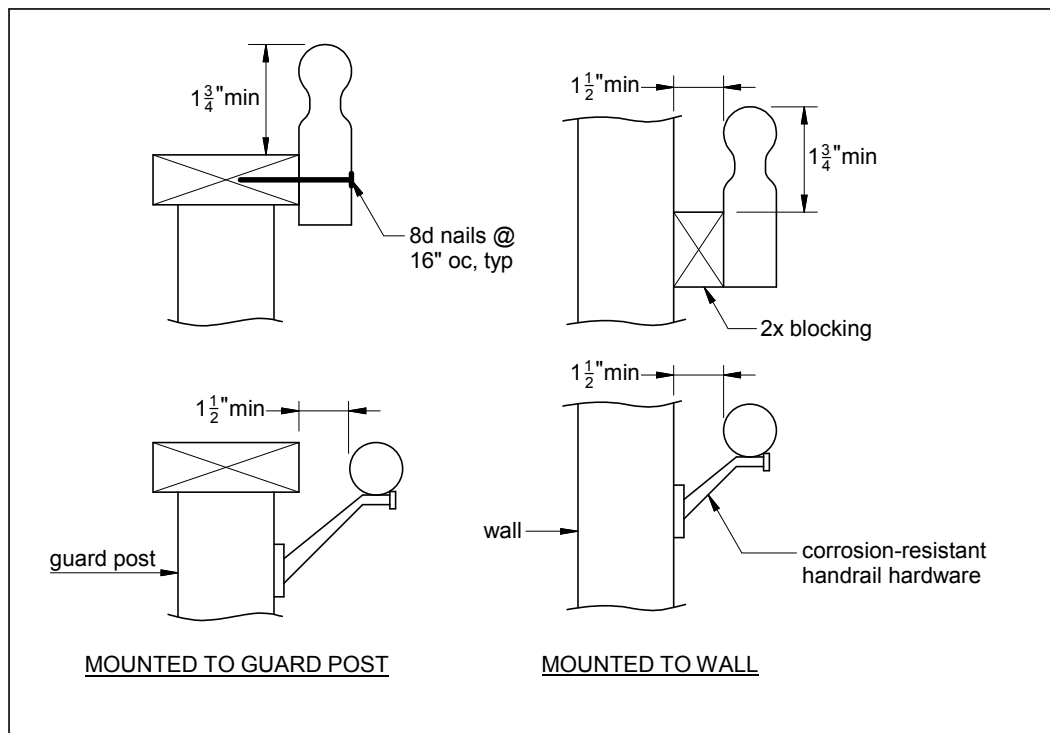


FIGURE 39: HANDRAIL REQUIREMENTS